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# Do villages allocate sufficient fund for disaster risk reduction? A survey of 10 villages in Banda Aceh

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**Abstract.** This study aims to assess and evaluate the disaster budget in 10 villages in Banda Aceh. By using a qualitative descriptive approach, this study analyzed budgets and other financial information from 10 selected villages in Banda Aceh. The villages were affected by the 2004 tsunami. A survey and series-of interviews were conducted to obtain a more detailed understanding of why the villages do or do not allocate sufficient disaster budget allocations. This study unveils that the villages allocated a very small disaster budgets ranging from 0.00 to 0.88% of their total budget. The disaster budgets were mainly allocated as cash financial assistance to disaster victims, rather than as preventive programs. The reasons behind the small allocation to disaster budgets in the villages are (1) disaster budget is not spent/used, (2) high dependence on the Banda Aceh city in term of disaster management, (3) very strict financial regulations on the use of village funds, (4) insufficient Village Funds, and (5) lack of knowledge of DRR among village government officers. The result of this study can be used to improve the capacity of village apparatus in disaster management as well as to enhance the financing of DRR programs in Indonesia.

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## 1. Introduction

The Indonesian law of Disaster Management Number 24 (2007) states that the implementation of disaster management is a sharing responsibility of all parties, including government, community and business entities [1]. In this context, the central government and local governments are required to allocate funds for covering the disaster management programs and strategies. In parallel, the Indonesian village law urges villages to use village fund for disaster mitigation activities including to revise budget to accommodate special or extraordinary events i.e. disasters [2]. In fact, the central government prioritizes disaster preparedness programs to be financed by the village fund. These regulations indicate the interest and concern of the Indonesian central government on the use of village funds for disaster preparedness and mitigation programs. This funding option is crucial as the local governments have very limited budget [4].

The usage of village funds for disaster-related programs seems to be promising although it has many potential obstacles and challenges. Indonesia as a disaster-prone country needs to find a good formula



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for financing disaster mitigation program to ensure the effectiveness of DRR nationally, and more importantly to reduce the number of victims and the scale of financial losses. However, research on disaster budgeting is quite limited. There is a research gap relating to how government allocates the disaster funds, especially in local governments in Indonesia [5]. Previous studies on disaster budgeting focus more on how much money has been allocated for disasters and the determinants of disaster budgets at the national and provincial level.

The financing of DRR programs in local government have some obstacles and lack concern from the local governments [4]. In this context, villages can play a more significant role in financing DRR programs through budgeting for disaster preparation. Firstly, each Indonesian village receives a Village Fund ranging from IDR 800 million to more than IDR 1.5 billion every year from the central and local governments. As indicated above, this money may be allocated to DRR program. Secondly, DRR programs could be more relevant and effective when they are planned and decided by the village government as they are the people who know best their needs and problems.

This study aims to investigate whether and how villages in Banda Aceh allocate Village Funds for disaster risk reduction efforts and to understand the reasons, motivations and challenges faced by the villages in allocating these disaster-related expenditures.

## 2. Data and Methods

This research adopts a mixed research method, namely descriptive quantitative and qualitative methods to analyze the proportion of allocated funds for disaster mitigation efforts in villages within Banda Aceh region. The data were collected from the 2017 village budgets and questionnaires filled by the head of each village or the secretary of the villages. The sample of this research is 10 villages located in the Banda Aceh coastline. The sample criteria is villages that were significantly affected by the 2004 Indian Ocean tsunami. A serial Semi-structured interviews was carried out to uncover the budgeting process, allocation of the DRR program and the motivation behind decisions taken.

The informants/ respondents were all village-leaders actively involved in the village budgeting process. The main purpose of the interviews is to explore why and how the village fund was used for the DRR programs. The data were analyzed by using descriptive analysis and qualitative data analysis approaches. The data were collected between April and August 2018. All interviews were conducted in the village offices or in the village leaders' house. On average, the duration of the interviews was between 30 to 60 minutes and not all interviews were recorded.

## 3. Results

### 3.1 Profile of sample and statistic descriptive

This study was carried in 10 selected villages in Banda Aceh. These villages were significantly damaged in the 2004 tsunami and with loss of life ranging from 15% to 50% of the local population. This high casualty rate is due to the villages close proximity to the sea. It is assumed on the basis of this tragic event that the current inhabitants of these 10 villages and their leaders really understand about the tsunami and its potential risk and consequently that they will more motivated to prepare for disasters than the other villages in Banda Aceh (please see Table 1).

**Table 1.** Profile of samples and amount of village fund in 2017

No.	Village Name	Sub-Districts	Distance to the seashore	Village Budget 2017 in million IDR (in thousand USD)
1.	Gampong Jawa	Kuta Raja	1.21 km	1,644 (113)
2.	Gampong Pande	Kuta Raja	1.03 km	1,509 (104)
3.	Ulee Lheue	Meuraxa	94 m	1,461 (100)
4.	Blang Oi	Meuraxa	1.26 km	1,427 (98)

5.	Lambung	Meuraxa	889 m	1,351 (93)
6.	Deah Baro	Meuraxa	482 m	1,385 (95)
7.	Deah Glumpang	Meuraxa	566 m	1,373 (94)
8.	Alue Deah Teungoh	Meuraxa	568 m	1,409 (97)
9.	Tibang	Syiah Kuala	1.55 km	1,580 (109)
10.	Alue Naga	Syiah Kuala	674 m	788 (54)

From the table 1, it can be seen that the sub-districts located on the seashore such as Kuta Raja, Meuraxa, and Syiah Kuala sub-districts have potentially large risk exposure to tsunami risk. The distance between the villages and the nearest beach is less than 2 km and it would takes only few minutes for tsunami tidal reach the villages. Thus, the 10 villages should anticipate the risk through a well-designed planning and preparedness system.

It can also be clearly seen from the table 1 that the villages have different amount of budget. The reasons for the budget variation is that the central government taking into account the population, poverty level, are, and level of geographical difficulties [6]. Almost half of the villages have more than IDR 1.4 billion or more than USD 100,000 annual budget. This number can be considered as a big budget compared to other villages outside Banda Aceh.

### 3.2 The allocation of the village budget for DRR related programs

The village budget is proposed and managed by the village officers which include the head of the village, secretary, and treasurer. The budget proposal and proposed programs are discussed with the village supervisory board which comprises the villager representatives and the informal leaders in the villages. This system seeks to ensure that a sufficient level of villager participation in the budgeting process. According to the data analysis shown in the table 2, some villages have used the village funds for DRR programs.

**Table 2.** Village fund allocation for the DRR program on the 2017 village budget

No	Village Name	Budget for DRR Related Programs in IDR (in USD)	Portion of Total DRR Related Program form the Total Budget
1	Gampong Jawa	10,000,000 (680)	0.61 %
2	Gampong Pande	0	0 %
3	Ulee Lheu	3,000,000 (206)	0.21 %
4	Blang Oi	1,031,817 (71)	0.07 %
5	Lambung	600,257 (41)	0.04 %
6	Deah Baro	1,000,000 (68)	0.07 %
7	Deah Glumpang	0	0 %
8	Alue Deah Teungoh	10,000,000 (680)	0.71 %
9	Tibang	13,995,000 (965)	0.88 %
10	Alue Naga	6,320,000 (430)	0.81 %

This study reveals that the villages, although they are vulnerable to the tsunami and other disasters, allocated a very small amount for disaster related programs. In fact, three out of ten villages did not allocate money for the DRR programs. It can be seen in the table 2 that seven villages have budgeted programs related to disasters but the proportions (and actual amounts) are insignificant. The highest portion is only 0.88 percent or IDR 13,995,000 for a year. Apparently, there is no correlation between village demography or proximity to the coastline and the size of the DRR program allocation.

Table 3 exhibits that some villages have used the village budget for DRR activities. For instance, Tibang village has budgeted money to basic logistics for an emergency response program, while Lambung village has established tsunami evacuation route signs in the village roads. In addition, there are villages that have not spent any of the village budget for the DRR activities, even though they are exposed to the risk of tsunami and other natural disasters.

**Table 3.** DRR Activities in Realization of Village Budget in 2017

No	Village Name	Name of DRR Related Program	Description of the Programs
1	Gampong Jawa	Grant for disaster victims	Financial assistance for residents whose houses burned (fire).
2	Gampong Pande	-	-
3	Ulee Lheu	Grant for disaster victims	Financial assistance for residents who died while fishing in the sea. The village provided financial aid (cash) of IDR 3,000,000 million for each victim.
4	Blang Oi	Grant for disaster victims	Financial assistance to people affected by the disaster.
5	Lambung	-	-
6	Deah Baro	Preparing medicines	Preparing medicines for residents in the event of a disaster, for example, a fire is injured, medicines will be provided.
7	Deah Glumpang	-	-
8	Alue Deah Teungoh	Grant for disaster victims	Providing assistance to residents whose homes were damaged by storms and fires.
9	Tibang	Procurement of Food and Beverage Supplies, cabinets, cookware, health equipment and equipment for safety procedures	The village prepares basic logistics for disaster responses including medicines and kitchen utensils that distributed to the victim of, for example, fire. The logistics were distributed to residents who were hit by the calamity. The village also paid for a temporary house rental for the victims.
10	Alue Naga	Procurement of house materials	Repairing the victims' homes which were damaged by storm

Based on the tables 2 and table 3, it can be concluded that the amount of budget allocated for disaster management in the villages studied is very small i.e. less than 1% of the total village funds obtained from the upper level of governments. In fact, some villages did not allocate any money for the disaster-related programs. Furthermore, those villages that did allocate money tended to provide for financial aids for victims and logistics for disaster emergency responses rather than preparation. Thus, the disaster-related program budget can be categorized as responsive actions to disasters, rather than preventive. In other words, the DRR budget allocation is small, and of that is focused helping victims after the disaster happen.

This is consistent with the finding of Oktari et al [4] and Dartanto et al [8]. Oktari et al [4] studied the budget of the Regional Disaster Management Agency (or *Badan Penanggulangan Bencana Daerah*/BPBD Banda Aceh. They uncovered that the BPBD receives a relatively small portion of budget from the local government budget i.e. not more than 0.6% of the total budget of Banda Aceh. Meanwhile, Dartanto et al [8] investigated the awareness of 486 Indonesia local governments in promoting disaster mitigation. They found that more than 50% of the local governments did not allocate sufficient budget for disaster-related programs. -

### 3.3 Why did allocated disaster budget difficult?

The village fund provided by the central government is accompanied by an extended financial autonomy for the village government [7]. There are several challenges and difficulties in budgeting and spending village funds for village level disaster risk reduction efforts in those villages studied. Based on the serial interviews, the informants expressed reasons why allocating disaster budget is a difficult task, namely: (1) unspent disaster budget, (2) a high dependence on the BPBD in term of disaster management, (3) very strict financial regulations on the use of Village Funds from the central government, (4) insufficient village fund, and (5) lack of knowledge of the village government in the DRR.

#### 3.3.1 Unspent disaster budget

Most of the budgeted DRR program budget is contingent activities with a high level of uncertainty. In these circumstance the budget allocation will only be spent or realized if the anticipated disasters occur. In other words, if the disaster does not occurs, the money will not be used and will remain as idle fund at the end of the financial. This unrealized budget (surplus) potential discourages village governments to allocate budget for the DRR related programs because a high surplus is considered to be poor financial management by the local government and most probably result in the surplus affecting the next year budget in the form of a budget cut. As a result, some villages such as Ulee Lheue do not budget village funds for DRR anymore because the funds could not be used because there was no disaster in that year, so it would be budget surplus.

“Most of our people are fishermen, and their job is very risky, so we prepare 3 million IDR to provide financial aid or assistance if they get incident in the sea. We can also use the funds if there is a fire, but for 2017 there were no such incidents, so we cannot propose the budget in the current year (2018)”.

#### 3.3.2 Highly dependence on the BPBD

This study found a consensus within the villages that disaster management and preparedness should be arranged by the BPBD. The villages do not allocate money for DRR programs because they believe that BPBD has this responsibility. The villages will allocate the money if they receive a direct-order or request from the BPBD. For example, Gampong Pande respondents reported that they do not use their village funds if BPBD does not instruct them to do it. “No one is responsible (for the DRR program), because the BPBD does not direct us to use our own funds”. A similar problem is also found in the Alue Deah Teungoh. “It is already budgeted, but so far we had a lot of assistance from outside parties, such as the BPBD for the DRR related activity in this village here and for the establishment of this village as a Disaster Resilient Village. These activities and program were funded by the BPBD”.

#### 3.3.3 Strict financial regulations

Some of the interviewees admit that the financial rules of village fund are very strict. The Gampong Jawa village head reported that there are some rules that discourage them to budget for DRR programs. They are reluctant to be more innovative in designing DRR programs because the program may not align with the financial reporting requirement and therefore cannot be fund from the village budget.

### 3.3.4 *Insufficient village funds*

The village fund is mostly used for staff expenses (salaries) and capacity building of the village government staffs. The rest of the money tends to be used for building infrastructures-i.e. drains and village roads. As a result, the Village Fund is always not sufficient to cover more programs related to DRR. "if I can say, we have a lot of needs, so the budget is still not enough" (Village senior officer of Lambung).

### 3.3.5 *Lack of knowledge of the village government in the DRR*

Based on the interviews with the respondents, it is noticed that the villages'-staff and key officers have limited knowledge of disaster and DRR. The village government mostly budgeted disaster emergency programs which are sporadic/ reactive. One reason for this could be that they did not know exactly what and when the DRR programs should be proposed and budgeted. For example, the Alue Naga village has a budget to help villagers whose houses are damaged by disasters. This was acknowledged by the village secretary "in the event of a disaster we have funds to help affected victims". Most of the village leaders do not have educational backgrounds and past experiences on disaster management. They might have graduated from university-but their major is not related with disaster management. Furthermore, not all villages-heads and staff have participated in any DRR training. One of the village leaders, the head of Tibang village, has participated in DRR training in Japan. As a result, he is able and has the motivation to develop DRR related programs in his village. "We make activities that different from what BPBD has, so we make routine activities such as self-training on tsunami day or tsunami reminder when the Hajj month approaching, so our people can reflect their tsunami experience and be more ready [2004 Tsunami was happen in the Hajj month]".

## 4. Discussion

In order to be effective and beneficial, the DRR programs require-continued financial resources from governments, including from the village governments. The DRR investment and programs can be expensive and it should be financed by each level of government, not only the central government. In the context of Indonesia, each village government has the opportunity to take part in DRR, especially after the village laws enacted recognize the Indonesian village as one of the formal levels of government. In addition, village leaders have more information and understanding on the village and villagers, their characteristics, problems and needs to help them in designing effective DRR programs.

Despite this supportive context, this study has found a very limited role is played by Indonesian villages in DRR programs. This is reflected by their small number and the tiny proportion of disaster budget allocation when compared to their total budget. There are several causes/ reasons for this and it can be classified as internal and external factors. The internal factors are the contingency characteristics of DRR programs, insufficient village Funds and the lack of knowledge of the village government of DRR. Addressing these should a concern for the central governments in its role as the primary regulator. The government, and especially the Indonesian Finance Ministry, should provide specific regulations that capture the uncertainty and contingent characteristic of DRR program budgets. Any 'idle' money or surplus associated with the DRR program should be not seen as an indicator of poor financial performance, but should be allowed to 'roll over' as an ongoing disaster contingency fund for the village.

Moreover, the government should encourage villages to allocate a minimum amount of budget for DRR programs. For example, the government might require s-each village to allocate at least 2% of its budget for the DRR programs. On top of that, the capacity and knowledge of village-officers needs to-be improved to enhance the quality of DRR programs they propose and implement [11]. Without adequate education and training, they will be incapable to design the most appropriate DRR programs for their villages, particularly allowing for-the limited size of the budget. Octrian et al [9] documented

the limited and insignificant impact of Village Fund on the village development. This finding reflects a more general poor quality of planning and monitoring of Village Funds, indicating potential wider benefits associated with improved education and training of village officers [12].

Another external factors are the high dependence on the BPBD for disaster management, and very strict financial regulations on the use of village funds from the central government. These can be solved by designing a map of responsibilities for DRR program and financing. The synchronization and direction among institutions is also required in order to avoid overlapping disaster programs being delivered to the community [10]. The BPBD should lead the mapping of the resources and capacity of each party. For example, villages with limited capacity in terms of knowledge and financial resources, can propose and manage capacity building program among officers and the villages rather than providing financial aids for the victims after an event.

These research results are consistent with previous studies. Ririn [14] found that there are resilient villages (or *Desa Tanggap Bencana*) that still have not used village funds in disaster budgeting in Yogyakarta, Indonesia, despite the Disaster National Agency's (BNPB) regulation No. 01 [15] stipulating that designated "resilient villages" can use village funds to carry out DRR activities. This is in line with the results of this study that there are two villages in the Banda Aceh area that have been established as "resilient villages" but they did not allocate a disaster budget and instead rely on assistance from external villages.

The problem of small disaster management budgets is not limited to villages, but also Indonesian local governments. The BPBDs, as the government bodies responsible for DRR in each city/districts, have relatively small budgets compared to other arms of government. This is confirmed by Oktari et al study in BPBD Banda Aceh. A similar case is also found in the national context. According to Darwanto [5] disaster budgets of the central government accounted around 1-2% of the total national budget in 2011- 2012. This number is relatively small when compared to the international standard of disaster budget. One reason for this trend might be a low awareness in local government of the threat of disasters in the region so that the disaster program has not become the development priority [13].

Lastly, the concept of a resilient society is (defined by Twigg [20]) encourages the government to enhance the capacity of the community so that the community can independently carry out DRR programs in their areas. In this context, the village funds are expected to become a source of DRR program financing to improve the villagers' capacity in dealing with disasters. The disaster programs in villages should be designed to increase the community preparedness and awareness of disasters rather than to give financial aids and logistics for the victims.

## 5. Conclusion

Although the regulations regarding the allocation and the use of village funds for disaster mitigation program is granted, the studied villages did allocate sufficient allocations for the DRR programs. The allocations for DRR were consistently less than 1 % of the total village budget and in fact, 2 out of 10 villages did not allocate any budget for DRR programs although they are in the tsunami-affected zone.

The villages with DRR program funds focus primarily on responding to disasters and in particular supporting victims rather than on preparedness and awareness of the community. This study identified several reasons or challenges that contribute to the low level of village-based DRR. These include fear of budget surplus (unspent budget), high dependence on the BPBD, a strict interpretation of



financial reporting regulations, the small size of the overall Village Funds and lack of knowledge of DRR concept among village government officers. These findings should provide a compelling narrative and it can be used by the policymakers to map and improve the management of financial resources for DRR programs at the grass-roots level across Indonesia. Further research is imperative to improve the role of villages in DDR strategies and design idea DDR programs for villages.

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